REMARKS

Applicants respectfully request reconsideration of the present application in view of the reasons that follow.

I. Status of the claims

No claims are added, canceled or amended presently. Accordingly, claims 1-6 and 8-22 are pending, claims 10-15 are withdrawn, and claims 1-6, 8, 9, and 16-22 are under examination.

II. Claim rejections – 35 U.S.C. § 103(a)

Claims 1-6, 8, 9 and 16-22 are rejected over U.S. patent No. 4,678,673 to Marshall in view of the Jiménez, PROCEEDINGS OF THE 9TH INTERNATIONAL LUPIN CONFERENCE, June 1999, and Olmos-Dichara *et al.*, *Biotechnology Letters* 19: 709-14 (1997). Applicants respectfully traverse this ground for rejection

The pending claims relate to a protein preparation comprising, *inter alia*, at least 60% protein from a plant source comprising lupine seed, based on the dry weight. No permutation of teachings reasonably drawn from the cited references could have suggested a composition characterized by such high levels of lupine seed protein.

A. Marshall

Marshall discloses "fermented oilseed products [that] have a buttery or dairy-like flavor and [that] are useful in preparing imitation dairy products such as imitation cream cheese." Marshall at abstract. In general terms, the fermented oilseed products are formed as follows: Dry, clean oilseeds (*e.g.*, soybeans) are ground "in the presence of hot water made alkaline," to form a slurry. *See, e.g.*, column 3, lines 61-66. The slurry is then pasteurized at high temperature and neutralized with a "suitable inorganic acid" (col. 4, lines 1-2). At this point, the slurry can be dried and stored for later use (*e.g.*, reconstituted for later fermentation), or the slurry can be fermented after the pasteurization and neutralization step. *See, e.g.*, column 4, lines 3-12.

For fermentation, the slurry is prepared such that "the solids level in the oilseed slurry [is in the]…range of from about 9 to 18 percent, based on the total weight of the slurry" (col. 4, lines 57-58). The slurry is inoculated and fermented for "a relatively short period of time," *e.g.*, 4 hours, and after fermentation, the slurry is again pasteurized to inactivate the fermentation culture. *See, e.g.*, col. 4, lines 49-50, col. 5, lines 21-22, col. 2, lines 37-41, and col. 5, line 58. The fermented product can then be spray dried to a level of "96% total solids" (col. 5, line 25, lines 58-62). The spray dried, fermented product then can be incorporated into a food product (col. 5, lines 63-68).

As noted, the starting point for Marshall's fermentation product is a slurry formed from ground oilseeds. The reference teaches that the protein content of dried, ground soybean is 40.5%, and the protein content for dried soymilk is 44.5% (on a dry weight basis). *See* column 4, lines 15-28; Table 1. Thus, a slurry formed from dried soybeans or dried soymilk and used for fermentation can have *at most* 40.5%-44.5% protein on a dry weight basis.

Marshall does not disclose or suggest that the protein content of the slurry increases due to the pasteurization, neutralization or fermentation steps. Nor does Marshall even hint at adding plant protein to any step of the reaction or to the final composition.

With respect to spray drying the fermented slurry, Marshall states that the slurry can be dried to 96% dry solids; however, only a portion of the solids is protein (see Table 1). As Marshall neither teaches nor suggests the addition of protein or an increase in protein content of any kind, the dried, fermented solids will likely have about the same protein content as the starting material, *i.e.*, for soybean or soymilk, the maximum protein content would be 40.5% - 44.5%. This is far less than the "at least 60% protein" recited in the claims.

B. Jiménez

Jiménez discloses methodology and compositions related to lupin seeds, and describes characteristics of lupin seeds and food products derived from the seeds. *See, e.g.*, the abstract,

page 443, 444. Jiménez describes that lupin seeds have a high protein content, in the range of 35-45% protein, which "compares favorably with soybean" (page 442, Introduction). Jiménez asserts that the protein content of processed (*e.g.*, debittered) lupin seed ranges from 50-52.8%, depending on the processing method (page 443, Table 1). At page 444, table 5 of the reference also provides the protein content of lupin milk (4.8%), cow milk (3.2%) and soybean milk (3.0%). See also page 444, in the left column, for the statement that "[w]e produced lupin milk from debittered (thermal alkaline process) and ground *L. campestris* seed with 4.8% protein." Jiménez also discloses fermentation of lupin milk to produce a yogurt-like product. For instance, see page 442, last sentence of Introduction, and section entitled Fermentation of Lupin Milk at page 442.

Through all of this, however, Jiménez does not suggest a composition comprising at least 60% lupin seed protein.

C. Olmos-Dichara

Olmos-Dichara relates to "growth and lactic acid production by Lactobacillus casei ssp. Rhamnosus in batch and membrane bioreactors," and describes the "influence of yeast extract and Tryptone enrichment." Olmos-Dichara at title; see also page 710, left col. lines 1-6. Yet, Olmos-Dichara is silent with respect to lupin, lupin seeds, or compositions derived from lupin seed.

D. The combination of references fails to disclose or suggest the claimed compositions

As noted above, none of the references, alone or in combination, discloses or suggests a protein preparation comprising "at least 60% protein from a plant source comprising lupine seed, based on the dry weight." Even if the skilled artisan were to use the highest protein lupin seed preparation taught by Jiménez (52.8% protein for alkaline debittered seeds) with the slurry formation, pasteurization and fermentation methods of Marshall, the end product still would not have "at least 60% protein" as recited in the claims.

Because neither Marshall nor Jiménez suggests methodology for increasing or enhancing protein content, the final product of the hypothetical Marshall/Jiménez combination would include 52.8% protein, at most. For these reasons alone, the obviousness rejection in question is not sustainable and should be withdrawn.

In addition, the skilled artisan would not have been motivated by the cited combination to develop the claimed high protein product. There is no teaching or suggestion in any of the references to isolate or extract lupin seed protein, to provide additional lupin seed protein to the disclosed preparations, or to process lupin seeds so as to increase the protein content to at least 60%. In fact, the only reference that discloses a lupin seed preparation, Jiménez, touts the already "high" protein content of these seeds and the products derived from the seeds, a tacit *disincentive* to consider enhancing protein content. *See, e.g.*, Jiménez's Introduction and table 5.

Accordingly, for at least these reasons, the rejection under 35 U.S.C. § 103 is improper, and its withdrawal is respectfully requested.

CONCLUSION

Favorable reconsideration of the application is respectfully requested. Examiner King is invited to contact the undersigned directly, should she feel that any issue warrants consideration.

Respectfully submitted,

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By /Stephen A. Bent/

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 672-5404
Facsimile: (202) 672-5399

Stephen A. Bent
Attorney for Applicant
Registration No. 29,768

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